

WHAT IS CLAIMED IS:

1. A manufacturing method of a semiconductor device in which a semiconductor substrate is subjected to processing includes pre-processing and post-processing, comprising:

a pre-processing step to process a semiconductor substrate;

a measurement step to measure a characteristic of said semiconductor substrate processed at said pre-processing step;

a setup step to set a processing condition for post-processing based on a result of the measurement at said measurement step;

a post-processing step to process said semiconductor substrate using said processing condition; and

an inspection step to inspect a characteristic of said semiconductor substrate processed at said post-processing step and to judge whether compliance with a predetermined standard is found or not,

and characterized in further comprising re-processing step of re-processing said semiconductor substrate judged not complying with said standard at said inspection step such that said semiconductor substrate complies with said standard.

2. The manufacturing method according to claim 1,

characterized in that a processing condition for said re-processing step is determined based on a result of the inspection at said inspection step.

3. The manufacturing method according to claim 1,
5 characterized in that said re-processing step is one step selected from a group including said pre-processing step and said post-processing step.

10 4. The manufacturing method according to claim 1, characterized in that said re-processing step includes said pre-processing step, said measurement step, said setup step and said post-processing step.

15 5. The manufacturing method according to claims 1 through 4, characterized in that said pre-processing step is a step at which an insulation film is deposited on said semiconductor substrate, and said post-processing step is a step at which said insulation film is etched using an etching condition determined from a measurement result regarding a film thickness of said insulation film.

20 6. The manufacturing method according to claim 1, characterized in that said pre-processing step is a step at which a field oxide film is formed on said semiconductor substrate, and said post-processing step is a step at which said field oxide film is etched using an etching condition determined based on a measurement result regarding at least
25 one dimension selected between a film thickness of said

field oxide film and a width of an active layer region sandwiched by said field oxide film, from a table showing a relationship between the width of said active layer region and an etching quantity of said field oxide film, such that
5 the width of said active layer region has a predetermined dimension.

7. The manufacturing method according to claim 1, characterized in that said measurement step is a step to measure at least one dimension selected between a film
10 thickness and a width of a predetermined portion of said semiconductor substrate.

8. A manufacturing system for semiconductor device includes a pre-processing apparatus and a post-processing apparatus, comprising:

15 a pre-processing apparatus to perform pre-processing on a semiconductor substrate;

a measurement apparatus to measure a characteristic of said semiconductor substrate processed by said pre-processing;

20 a setup apparatus to set a processing condition for post-processing based on a result of the measurement performed by said measurement apparatus;

a post-processing apparatus to perform post-processing on said semiconductor substrate using said processing
25 condition;

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an inspection apparatus to inspect a characteristic of said semiconductor substrate processed by said post-processing; and

an evaluation apparatus to judge whether a result of the inspection by said inspection apparatus complies with a predetermined standard or not,

and characterized in that said pre-processing apparatus and/or said post-processing apparatus re-process(es) said semiconductor substrate judged not complying with said standard by said evaluation apparatus, such that said semiconductor substrate complies with said standard.

9. The manufacturing system according to claim 8, characterized in further comprising a re-processing condition setup apparatus to set a re-processing condition for said pre-processing apparatus and/or said post-processing apparatus based on the result of the inspection by said inspection apparatus.

10. The manufacturing system according to claim 8, characterized in that said pre-processing apparatus is a deposition apparatus and said post-processing apparatus is an etching apparatus.

11. The manufacturing system according to claim 8, characterized in that said measurement apparatus is an apparatus to measure one dimension selected between a film

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thickness and a width of a predetermined portion of said semiconductor substrate.

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